OUR BOOKSHELF.

Studies in Primitive Looms. By H. Ling Roth. Part iv. (Bankfield Museum.) (Halifax: F. King and Sons.) Four parts, price 3*s.* each.

MR. LING ROTH has now completed his important technological monograph, of which four parts have recently appeared in the Journal of the Royal Anthropological Institute. In the introduction to the series he remarks that "weaving is generally considered to be the outcome of basketry and mat-making, and in most cases probably it is so." The arrangement of the monograph is geographical, and Mr. Ling Roth discusses the interesting problem of the origin of these varied types. Some, he thinks, were invented on the spot, and do not owe their origin to copying or to contact with other races. But this is not always the case. The African varieties—fixed heddle, pit treadle, and horizontal narrow-band—are all probably of Asiatic origin, the last having undergone so many modifications that, compared with its prototype, it is almost unrecognisable. The warp-weighted loom was used in ancient Greece, in the Swiss lake dwellings, and at the beginning of the Bronze age. It appears in Scandinavian saga in the eleventh century, and was probably in use by the Northern peoples many hundred years before that time. Mr. Ling Roth has illustrated his monograph with excellent sketches, drawn from all available sources, and his technical knowledge has helped him in discussing the various types. It may be hoped that he will extend his collection of papers, and republish them in a more accessible form.

Alfred Russel Wallace: The Story of a Great Discoverer. By L. T. Hogben. (Pioneers of Progress: Men of Science.) Pp. 64. (London: Society for Promoting Christian Knowledge, 1918.) Price 2*s.* net.

THE name of Alfred Russel Wallace is rightly held in honour as that of one who with few advantages of birth or education made for himself a distinguished position as naturalist and traveller, and who, besides adding largely to the acquaintance of scientific men with certain regions previously little known, and making extensive collections of their fauna, achieved independently the discovery of natural selection, the most illuminating principle ever enunciated in the history of biological study. It is obvious that the life of such a man cannot be treated adequately in a small book of sixty-four pages, and Mr. Hogben's volume does not pretend to be more than a sketch. In view, however, of his necessary limits, it is to be regretted that the author has not observed a better proportion in the selection of facts to be recorded. Details of Wallace's early life are interesting in their bearing on his later development, but we could have spared the account of the arrangement of desks and fireplaces in the grammar school at Hertford if Mr. Hogben had given us in its place a few more particulars of the exploration of the Amazon and of the Malayan islands. On the subject of geographical distribution the tone of the book is scarcely fair; and on p. 47, besides some careless punctuation, there is a distinct error of fact. With such amiable weaknesses as anti-vaccination and spiritualism we are not concerned, but we greatly miss a more extended account of the work that really made Wallace's reputation.

F. A. D.

LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. *No notice is taken of anonymous communications.]*

Fuel Economisers.

I CAN corroborate Mr. R. C. Parsons's remarks in NATURE of December 26 with regard to the advantages of economisers connected with stoves, as I have had them in use for the last twenty-six years with very satisfactory results, the heating being better with a greatly reduced consumption of fuel. My economisers differ from those of Mr. Parsons only in being arranged symmetrically behind the stove, and not to one side of it; and in having an opening in the dividing partition in the box, which is usually closed by a damper, but can be opened so as to provide a direct passage for the gases from the stove to the chimney, so giving a better draught to the fire when it is being lit. During these years I have had two stoves and economisers in use here; one is a Gurney slow-combustion stove, which has an economiser of about the same heating area as itself. This stove goes day and night during the cold season. The other is a common cylindrical slow-combustion stove, and its economiser has got about twice the heating area of the stove, and is only occasionally used.

When the Gurney stove was first fitted in, it had no economiser, and the result was unsatisfactory. All the hot air went to the top floor, and the ground floor was but little benefited, as it received only the radiated heat. After the economiser was added conditions were entirely changed; all the ground floor was now much better warmed. The reason for the change is evident when we consider what takes place under the two conditions. With the stove alone a good fire had to be kept up, and the highly heated air ascended to the highest part in the house, and tended to remain there, where it lost its heat to the ceiling, which is the coldest part of a top room; but when the economiser was added there was double the heating surface, so a much larger amount of air was heated, though not to so high a temperature. The hot air did not now have the same tendency to keep near the ceiling and lose its heat there, and the larger volume of hot air put into circulation enabled all the air in the ground floor to be heated.

These things are better understood in Switzerland, and in other countries where fuel is dear, than is the case here. There one frequently sees stoves built of bricks and tiled, 4 ft. or 5 ft. in diameter, and from 6 ft. to 8 ft. high, with a small wood fire burning in the centre of them.

With regard to the common cylindrical stove above referred to, another advantage of the economiser is that after the fire is lit it at once begins to warm the room, whereas the outside of the stove takes an hour or two to heat through the fire-brick lining, while the economiser is heated and begins to warm the room almost at once.

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If coke is used in the stoves there is no trouble with soot in the economisers, such as was found here with economisers used in connection with ordinary coal-stoked room fires. The stove economisers here require to be cleaned only once a year, principally for dust.

When the Government undertook the control of coal, plans and descriptions of the above economisers were sent to the Controller of Coal Mines.

John Aitken.

Ardenlea, Falkirk, December 27, 1918.

University Poverty or Parsimony?

Shortly before the war broke out there was some correspondence, in Nature and elsewhere, with reference to the pay offered to chemists in advertisements of the Research Department of Woolwich Arsenal. Exception was taken to the offer of little more than 100*l*. a year to men who were supposed to have received training rendering them competent to undertake research work. As a result, I believe, the Department was led to attach a rate of pay to the posts not quite so inadequate as that first proposed.

Apparently during the war some slight conception of the value of chemistry to the nation has been forced upon the public. So much has been said about the importance of research that we are almost as willing as the Americans to "talk big" about it, and put emphasis upon the first syllable. We even recognise (on paper) an indissoluble connection between science and industry; in fact, so great is our advance that several literary men have been appointed, at high salaries, to supervise the expenditure of public funds on technical scientific inquiries. It is true the Board of Trade has systematically declined to associate science with the dyestuff industry, but only by way of being the exception to prove the rule. The Board, we know, is a superior body, and not to be led by any vulgar policy; the highest explosives would not cause its august officials to accept advice.

The President of the Board of Education, too, has often discoursed eloquently on the value of intelligence; moreover, the need of attracting intelligence, if not genius, into the chemical and other learned careers is a topic we never weary of airing in these days.

My object now is to direct attention to the way in which the learned are living up to their own professions, to urge that charity really should begin at home. I do this because my eye has casually fallen upon an advertisement in your columns in which applications are invited by the Vice-Chancellor of the University of London for a University chair of chemistry tenable at King's College at the princely salary of 600*l*. a year. Thus do we testify to our belief in ourselves. No man can fulfil the duties of such a chair adequately on such pay.

It can only be supposed that the University desires to write down the value of King's College chemistry in comparison with that taught at the South Kensington and University Colleges. A more effective way could not well be found, and in the interest of the subject it would undoubtedly be better to concentrate the teaching at two schools.

If, however, chemistry be retained in existence in the Strand, and funds be not forthcoming for the proper endowment of a chair, at most a lectureship should be established; and it would be wise to provide that candidates should not exceed about twenty-five years of age and should hold the appointment at most during ten years.

Let us hope that the profession will make no response to the invitation. Unless chemists themselves take some effective action to protect their interests, the position of chemical science in this country will not only be worse than it was before the war, but must steadily degenerate as years go on.

Henry E. Armstrong.

Inter-Allied Conference on International Organisations in Science.

In the account of the Inter-Allied Scientific Conference at Paris published in Nature of December 26, reference ought, perhaps, to have been made to the status which it has been decided to give to the self-governing British Dominions. These will be able to join any international association under the proposed scheme, on signifying their intention to do so, with the same voting power as independent States.

Arthur Schuster.

Yeldall, Twyford, Berks, December 27, 1918.

SCIENTIFIC RESEARCH AND PREVENTIVE MEDICINE.

It was stated recently in these columns that the toll of pain and death due to causes which are more or less preventable may be gauged in terms comparable with those demanded by the sufferings directly attributable to war. In order to reduce such sources of national loss it was considered important that in the evolution of schemes for the furtherance of research work in pure and applied science the question of the encouragement of research work in all branches of medical science should occupy a prominent place. The pandemic of influenza recently experienced may be taken as an illustration of the need for wide-embracing and well-organised research work in preventive medicine, and particularly in epidemiology. That such an epidemic would well deserve thorough and extensive investigation seems self-evident. According to the medical correspondent to the *Times* of December 18 and 19, 1918, there is good reason to estimate the world's death-roll from influenza and pneumonia at not fewer than 6,000,000 lives, at which rate he points out that this epidemic has been five times as deadly as the war during the same period of three months. Now a visitation on such a scale as this, in which many of the victims are in the prime of their lives, is comparable with the great plagues of the Middle Ages, and, coming at such a time as the present, is catastrophic from whatever point of view it may be regarded.

Epidemics of influenza have recurred at intervals for some hundreds of years, and in recent times have fallen on us in 1803, 1833, 1837-38, 1847-48, and 1889, when it became annual for several years. From 1860 to 1889 the disease became practically extinct the mortality per 1000 being about 0·003. Even during these epidemics the case mortality was low when compared with that which has obtained in the present outbreak, and was estimated at 1 to 1·6 per 1000. One of the most remarkable features of the recent epidemic is the tendency to the development of very acute toxic symptoms with such astounding rapidity that the body of the victim is overcome by the poison before defences can be put up; in any case, the defence is of a very temporary

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